



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

RBT18420
Job Sheet 175858



Part No: RBT18420

Job Qty: 2 ea

APR 11 2018

DAS
13
9-89

Part Name: Wing Pin Puller



Part Weight: 0 lbs

Status: Scheduled

Priority: Medium

Job Created: 4/11/18

Job Tracking No:

Due Date: 4/30/18

Created By: Marie Lajeunesse

Type: SOLD

Description:

Note: DWG RBT18420 Rev A IPP Rev A 18.03.21 New issue DP Verify DD

Ship Via:

Bill of Materials

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier		Sign-off
					Setup hrs	Run Hrs	Workcenter / Supplier	Lead Time	
60	Purchasing	1 pcs		4/28/18	0.00	0.00	Purchasing Start Up		AT 18/05/31
70	Packaging	1 pcs		4/28/18	0.00	0.00	Packaging2		AT 18/05/31
80	QC	1 pcs		4/28/18	0.00	0.00	QC6		38 9-89
90	Small Fab	1 pcs		4/28/18	0.00	0.00	Small Fab-3		
110	Small Fab	1 pcs		4/30/18	0.00	0.25	Small Fab-3		
120	QC	1 pcs		4/30/18	0.00	0.00	QC5		
130	Packaging	1 pcs		4/30/18	0.00	0.00	Packaging3-1		GA156 18-06-01
140	QC21-SA	1 Ea		4/30/18	0.00	0.00	QC21		21 JUN 01 2018

Part Op 60 - Issue PO to ARROW TECH MACHINE WORKS P/O: 39580 MANUFACTURE RBT18420 AS PER DWG.
Descriptions: -Certificate of conformity is required
110 - 1-Assemble as per DWG.

MAY 09 2018
DAS
13
9-89
x2

Job BOM

Part / Item	Component Name	Quantity	Operation	Container
RBT18420P	Wing Pin Puller	1 (1 ea)	60-Purchasing	5076901
91950A031	Washer, SS, 0.406" x 0.812"	1 pcs (1 ea)	90-Small Fab	
98407A134	Retaining Ring	1 pcs (1 ea)	90-Small Fab	
MS21209-F130L	Heli Coil Insert, #10-32	4 Ea (4 ea)	90-Small Fab	
NAS1149C0363R	Washer	4 Ea (4 ea)	90-Small Fab	
NAS1351-C316	Socket Head Cap Screw, #10-32	4 Ea (4 ea)	90-Small Fab	
RBT18420-1	Bolt	1 Ea (1 ea)	90-Small Fab	
RBT18420-3	Body	1 Ea (1 ea)	90-Small Fab	
RBT18420-5	Plate	1 Ea (1 ea)	90-Small Fab	

Job Allocations

Operation	Component Part	Required	Inventory	Allocated
60-Purchasing	RBT18420P	1	0	0
90-Small Fab	91950A031	1	0	0
	98407A134	1	0	0
	MS21209-F130L	4	0	0
	NAS1149C0363R	4	427	0
	NAS1351-C316	4	0	0
	RBT18420-1	1	0	0
	RBT18420-3	1	0	0
	RBT18420-5	1	2	0



Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
CANADA
TEL.: 1 613 632-5200
Email: sales@dartaero.com
www.dartaerospace.com

Container No: S076802



Part: RBT18420

Job No: 175858

Serial No/Batch: S076802

Revision: A

Inspector:

Exp Date: 05/31/2018

Instructions:

Date: 05/31/18

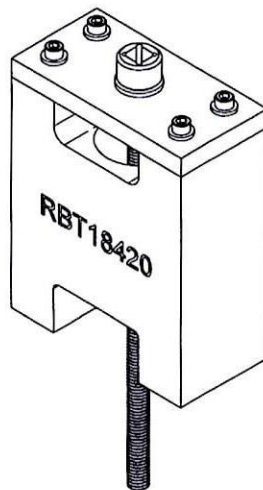
146
86
707-13

Part Specifications

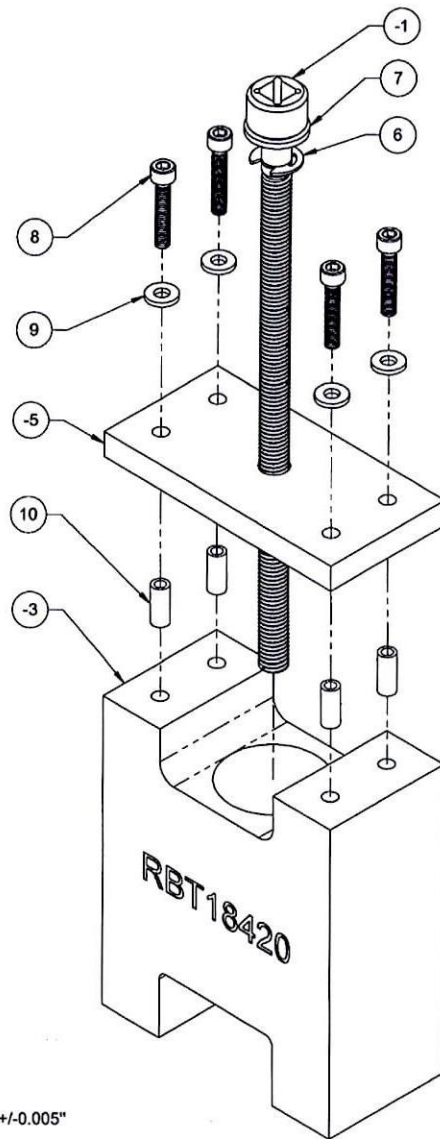
Specifications could not be found.

Plex 4/11/18 11:00 AM Dart.lajeunesse.marie

ITEM #	QTY	PART #	PART TITLE
-1	1	RBT18420-1	BOLT
-3	1	RBT18420-3	BODY
-5	1	RBT18420-5	PLATE
6	1	McMaster#98407A134	3/8" RETAINING RING
7	1	McMaster#91950A031	0.406" X 0.812" SS WASHER
8	4	NAS1351-C316	#10-32 SOCKET HEAD SCREW
9	4	NAS1149-C0363R	.203" X .438" X .063" SS WASHER
10	4	MS21209-F130L	#10-32 HELICAL INSERT



RBT18420 WING PIN PULLER



NOTES:

- 1) MATERIAL: N/A
- 2) HEAT TREAT: N/A
- 3) FINISH: N/A
- 4) TOLERANCES: X.X = +/- 0.1" / +/- 1"

X.XX = +/- 0.01" / +/- 0.5"
 X.XXX = +/- 0.005" / +/- 0.1"
 X.XXXX = +/- 0.0005" / +/- 0.05"
 PARALLELISM, ECCENTRICITY AND SYMMETRY ABOUT ALL CENTER LINES = +/- 0.005"

5) UNITS: INCHES UNLESS OTHERWISE NOTED

6) BREAK SHARP EDGES: N/A

7) IDENTIFICATION: N/A

8) ASSEMBLE AS SHOWN

A	NEW ISSUE	18-589	KT
REV.	DESCRIPTION	ECN #	BY
DESIGN	KT	DART AEROSPACE LTD	
DRAWN	KT	HAWKESBURY, ONTARIO, CANADA	
CHECKED	ML 03/20/2018	TOOL PART #	REV. A
MFG. APPR.	DD 03/20/2018	RBT18420	SHEET 1 OF 4
APPROVED	ML 03/20/2018	TITLE	SCALE
DATE	3/20/2018	WING PIN PULLER	NTS
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DQA: _____ Date: _____

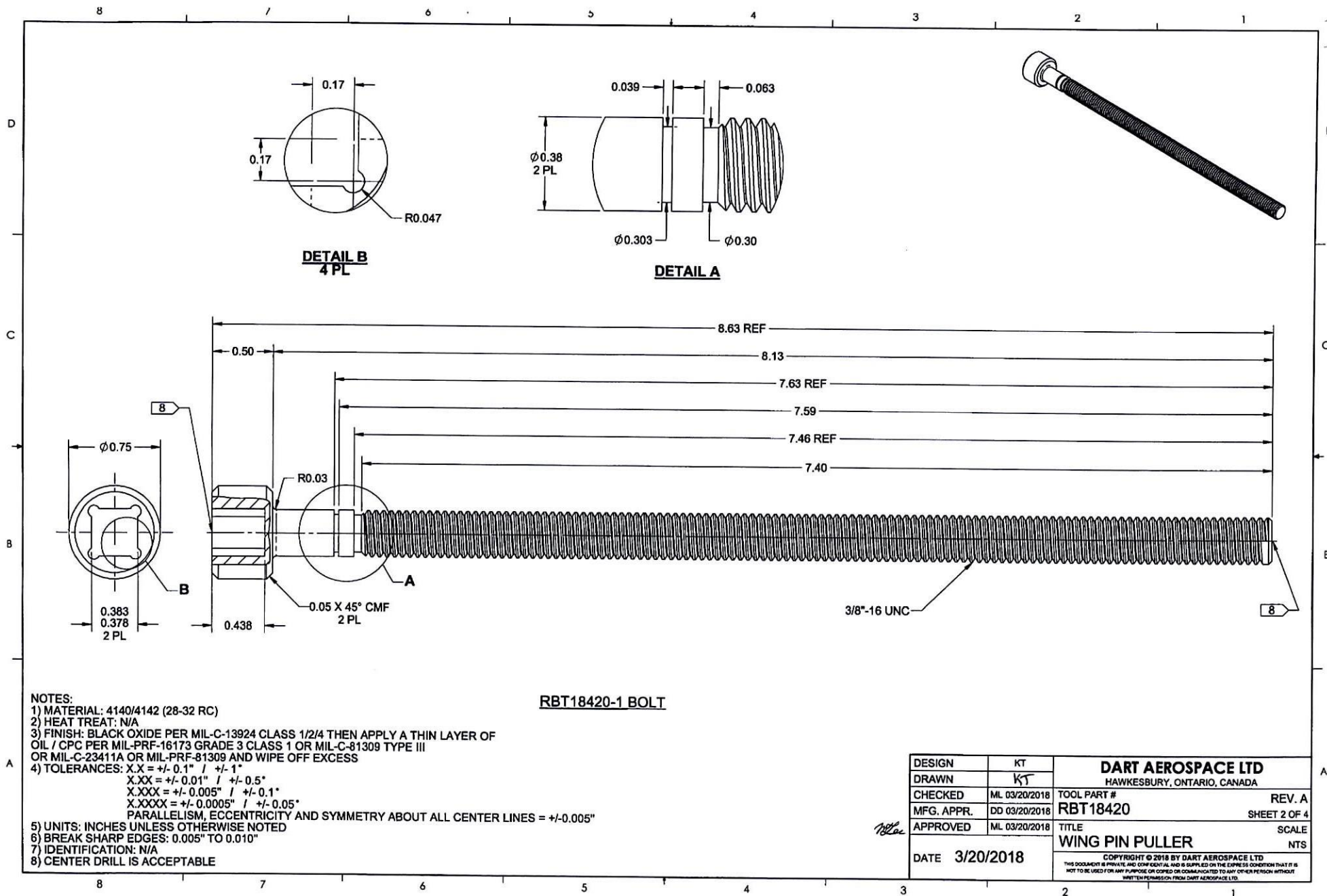


WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS <table style="width: 100%; border: none;"> <tr> <td style="border: none;">Skid-tube ☐</td> <td style="border: none;">Cross tube ☐</td> <td style="border: none;">Water Jet ☐</td> <td style="border: none;">Engineering ☐</td> </tr> <tr> <td style="border: none;">Machining ☐</td> <td style="border: none;">Small Fab ☐</td> <td style="border: none;">Prod. Eng. Coord. ☐</td> <td style="border: none;">Quality ☐</td> </tr> <tr> <td style="border: none;">Thermoforming ☐</td> <td style="border: none;">Finishing ☐</td> <td style="border: none;">Rec/Store/Packaging ☐</td> <td style="border: none;">Other ☐</td> </tr> <tr> <td style="border: none;">Large Fab ☐</td> <td style="border: none;">Composite ☐</td> <td style="border: none;">Supplier ☐</td> <td></td> </tr> </table>				Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐																																																								
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NOTES:

- 1) MATERIAL: 4140/4142 (28-32 RC)
- 2) HEAT TREAT: N/A
- 3) FINISH: BLACK OXIDE PER MIL-C-13924 CLASS 1/24 THEN APPLY A THIN LAYER OF OIL / CPC PER MIL-PRF-16173 GRADE 3 CLASS 1 OR MIL-C-81309 TYPE III OR MIL-C-23411A OR MIL-PRF-81309 AND WIPE OFF EXCESS
- 4) TOLERANCES: X.X = $\pm 0.1"$ / $\pm 1"$
X.XX = $\pm 0.01"$ / $\pm 0.5"$
X.XXX = $\pm 0.005"$ / $\pm 0.1"$
X.XXXX = $\pm 0.0005"$ / $\pm 0.05"$
PARALLELISM, ECCENTRICITY AND SYMMETRY ABOUT ALL CENTER LINES = $\pm 0.005"$
- 5) UNITS: INCHES UNLESS OTHERWISE NOTED
- 6) BREAK SHARP EDGES: 0.005" TO 0.010"
- 7) IDENTIFICATION: N/A
- 8) CENTER DRILL IS ACCEPTABLE

DESIGN	KT	DART AEROSPACE LTD	
DRAWN	KT	HAWKESBURY, ONTARIO, CANADA	
CHECKED	ML 03/20/2018	TOOL PART #	REV. A
MFG. APPR.	DD 03/20/2018	RBT18420	SHEET 2 OF 4
APPROVED	ML 03/20/2018	TITLE	SCALE
DATE 3/20/2018		WING PIN PULLER	NTS
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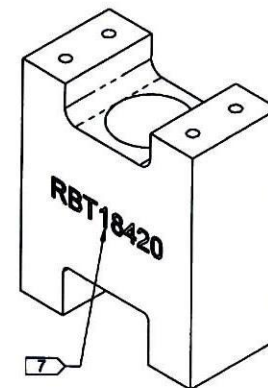


WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

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Description Work Order Deviation			Disposition																		
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Root Cause		FAULT CATEGORY																			
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐	Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐	Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐	Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐																
OTHER :																					



DESIGN	KT	DART AEROSPACE LTD	
DRAWN	KT	HAWKESBURY, ONTARIO, CANADA	
CHECKED	ML 03/20/2018	TOOL PART #	REV. A
MFG. APPR.	DD 03/20/2018	RBT18420	SHEET 3 OF 4
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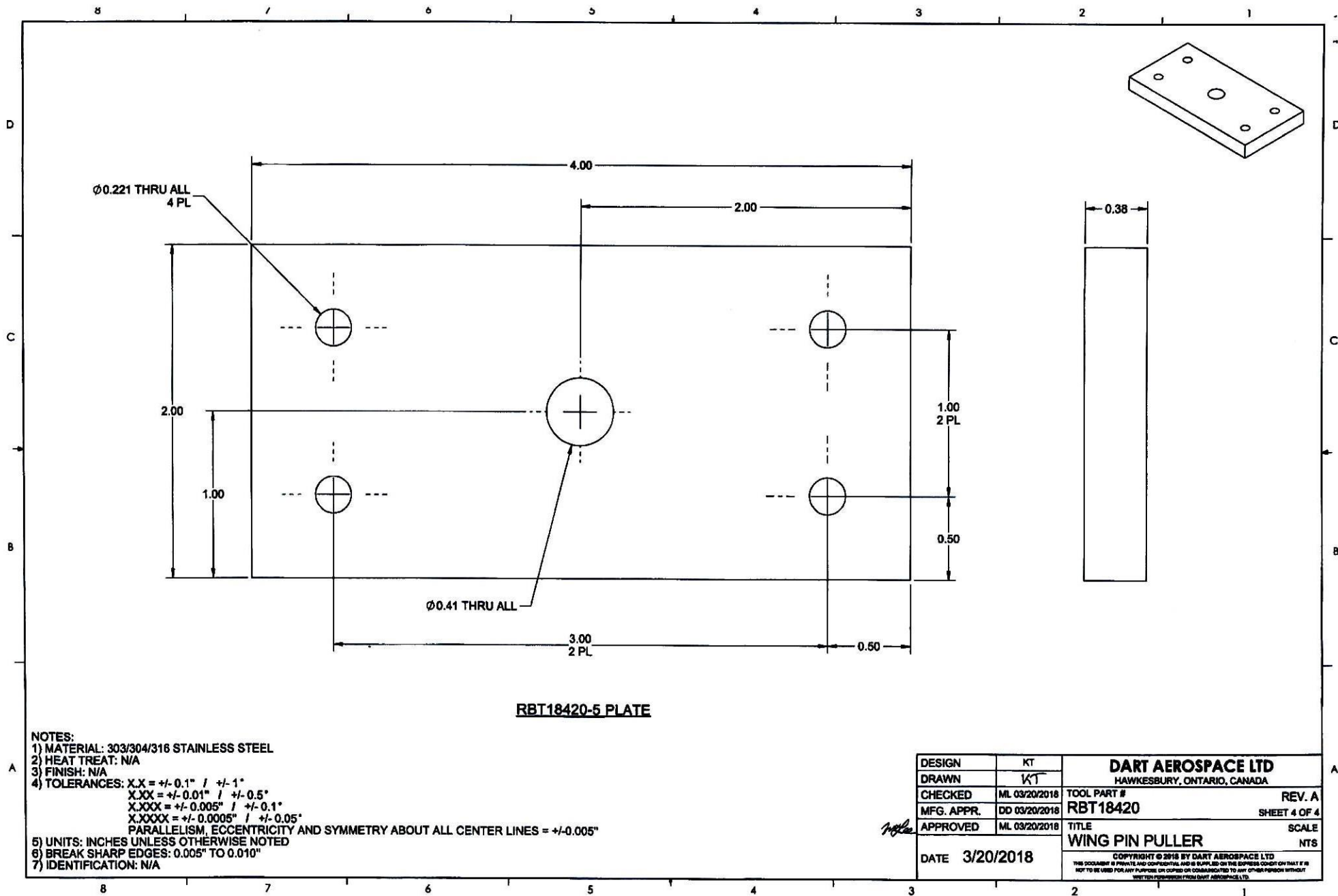


WORK ORDER NON-CONFORMANCE / UPDATE

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Date :	Step #:	QTY Effective :		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition			
				Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
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				QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY			
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐	Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
OTHER : _____					



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER **PO039580**

Supplier: ARR002-VU
Arrow Tech Machine Works
29751 E. Enid Road,
Unit C
Eugene, OR 97402 USA
Phone: 541-780-6938
Fax: 458-215-4938

PO No: PO039580
PO Date: 4/11/18
Due Date: 6/2/18

Purchase Order
Revision:

Revision Date:
Ship-To Contact: Phone:

Pymt Terms: Net 30

Freight Terms:

Special Comments:

REVISED

\$

Ship To:

Items											
Line Item	Part	Supplier Part No	Item No	Description	Status	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (USD)	Extended Price
1	RBEGM-745-064P			Removal/Installation-Motor Pump Cartridge (Forward Main Tank) WO 175829 AND WO 175826	Firmed	5/11/18	2 Ea	0 Ea	2 Ea	\$1,736.93/Ea	\$3,473.86
2	RBW109-3130-85-133P			Tool Kit, Tail Rotor Pitch Control Shaft Bearing Remove/Install WO 175827 AND WO 175893	Firmed	5/25/18	2 Ea	0 Ea	2 Ea	\$1,766.68/Ea	\$3,533.36
3	RBEL133M-6503-101P			Mounting Tool	Firmed	5/18/18	2 Ea	0 Ea	2 Ea	\$1,753.73/Ea	\$3,507.46
4	RBD29828P			Elastomeric Bearing Removal Tool WO 175825	Firmed	6/4/18	2 Ea	0 Ea	2 Ea	\$551.91/Ea	\$1,103.82
5	RBW6305G00431-3GP			Hoisting Flange Main Gear Box WO 175830	Firmed	5/29/18	4 pcs	0 pcs	4 pcs	\$1,013.90/pcs	\$4,055.60
6	RBE117-11181W1P			Main Rotor Drive Mounting Tool WO 175881, WO 175882, WO 175883, WO 175885	Firmed	5/11/12	4 Ea	0 Ea	4 Ea	\$2,603.98/Ea	\$10,415.92
7	RBW6305G00132-3GP			AW139 Gimbal Bushing WO 175863, WO 175864, WO 175865	Firmed	5/29/18	3 pcs	0 pcs	3 pcs	\$1,080.39/pcs	\$3,241.17

5/9/2018

PURCHASE ORDER

Items											
Line Item	Part	Supplier Part No	Item No	Description	Status	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (USD)	Extended Price
8	RBEM632V1001101P			Main Gear Box.Sling WO 175862 AND WO 175897	Firmed	5/9/18	2 Ea	0 Ea 2x	2 Ea	\$4,164.83/Ea A18/05/18	\$8,329.66
9	RBT18420P			Wing Pin Puller WO 175858	Firmed	5/25/18	2 Ea	0 Ea 2x	2 Ea	\$1,159.85/Ea A18/05/18	\$2,319.70
Grand Total:											\$39,980.55

DAE
38
9-89

Order Notes

Procurement Quality Clauses
 A005 RIGHT OF ENTRY
 A008 FIRST ARTICLE INSPECTION (FAI) BY SELLER, (DOCUMENTATION SENT TO DART AEROSPACE)
 A012 CHEMICAL AND PHYSICAL TEST REPORTS
 A016 PERSONNEL QUALIFICATION
 A017 RAW MATERIAL IDENTIFICATION (AS APPLICABLE)
 A026 CERTIFICATION OF MATERIAL CONFORMANCE
 A041 QUALITY MANAGEMENT SYSTEM
 A042 DART NOTIFICATION BY SUPPLIER
 A043 RETENTION OF QUALITY DOCUMENT

A048 COUNTERFEIT PARTS AVOIDANCE, DETECTION, MITIGATION AND DISPOSITION PROGRAM

A049 SUPPLIER AWARENESS

Terms & Condition of Purchasing(Suppliers) and Procurement Quality Clauses are an integral part of our AS9100 requirements. To learn in detail; please visit www.dartaerospace.com for further explanation.

Plex 5/9/18 11:45 AM dart.lavoie.chantal



ARROW TECH MACHINE WORKS

Certificate of Conformance

Your Purchase Order No:039850

Dated: 5/29/2018

Our Order / Job No: 09AWT

Order Qty: 2

Part Name: WING PIN PULLER

Part Number: RBT18420

Lot Size:N/A

Ship Date: 5/29/2018

We certify that these parts shipped to you are of domestic or international manufacture and conform to all requirements of the Purchase Order. These parts have been manufactured and inspected in accordance with all required specifications, instructions and drawings. Any applicable specifications are listed below:

Drawing Number: RBT18420

Rev:A

Material Size and Type: -1 4140 STEEL, -3 UHMW, -5 303 STAINLESS STEEL

Material Specifications: UHMW ASTM D4020, 303 AMS 5640, 4140 ASTM A108, ASTM A29

Heat Treatment: RC 28-32

Plating/Finish: BLACK OXIDE: QMSI-6.2.2 B.O. REV-D

Mercury Contamination: The material used to process this order has not come in contact with mercury or mercury bearing instruments.

Date: 05/29/18

Signed: 

PHGE Machine Works LLC dba Arrow Tech Machine Works
29751 E. Enid Rd. Unit C Eugene, Oregon 97402
Main: (541) 780-6938 | Fax: (458) 215-4938
www.atechmachineworks.com